

Appl. No. 09/973,285
Amdt. Dated February 13, 2006
Reply to Office Action of November 9, 2005

• • REMARKS/ ARGUMENTS • •

The Office Action of November 9, 2005 has been thoroughly reviewed. Accordingly, the changes presented herein for the application, considered together with the following remarks, are believed to be sufficient to place the application into condition for allowance.

By the present amendment, the specification has been changed on page 7 in the manner courteously suggested by the Examiner.

In addition, "dark" has been changed to "dart" in claim 8.

Entry of the changes to the specification and claim 8 are respectfully requested.

Claims 1-7, 14 and 15 stand rejected under 35 U.S.C. §112, first paragraph.

Under this rejection the Examiner has taken the position that original specification does not adequately describe the coreless induction coils in a manner that provides enablement to those skilled in the art.

Applicant's induction coil is illustrated in Fig. 4 as follows:

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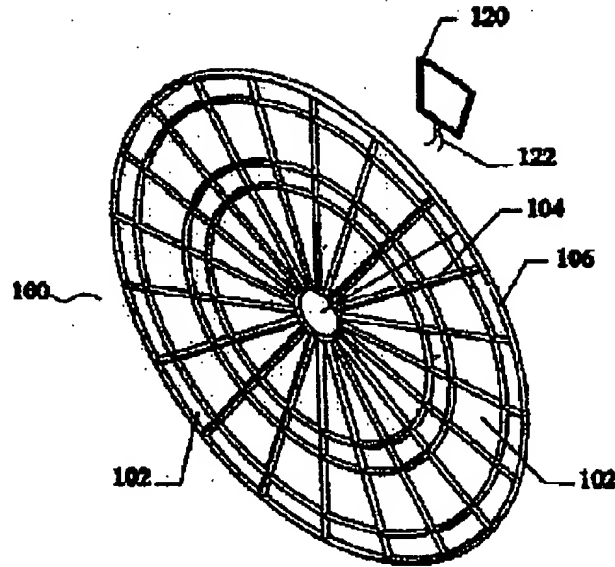


FIG.4

As can be seen the inductance coil (120) comprises an open loop made up of several turns that can be configured to the shape of one of various scoring areas of the dart board.

As the Examiner will not, applicant's induction coil is merely an open loop of a conductor in which a current is induced as the magnetic field of a magnet passes through the coil.

Attached as Exhibit A are pages 874-875 from the undersigned's college physics book (Physics Parts I and II, D. Halliday and R. Resnick, John Wiley & Sons, Inc, New York (1966).

Figure 35-4 on page 875 is reproduced as follows:

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Fig. 35-4 In moving the magnet toward the loop, we increase Φ_B through the loop.

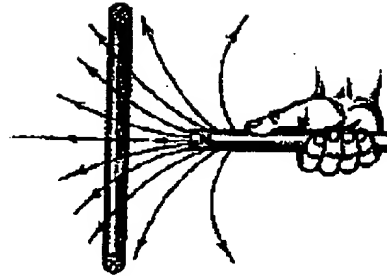


Figure 35-4 illustrates how a current is induced in a loop of wire as a magnet moves toward the loop.

As the Examiner will note, there is no need to include the type of iron cores 3 that are taught as being required by Fuscone et al. in order to induce a current in an induction coil.

Based upon the assumption that one skilled in the art would have at least a basic understanding of induction coils as noted above, it is submitted that applicant's original disclosure provides enablement to those skilled in the art to use induction coils that do not have central cores, i.e. coreless induction coils.

If the Examiner is concerned that applicant's specification does not expressly recite "coreless induction coils" (which are clearly shown and supported in Fig. 4), it is noted that, as held by the federal circuit in *In re Wright*:

The claimed subject matter need not be described in haec verba in the specification for the specification to satisfy the description requirement. The specification as originally filed must convey clearly to those skilled in the art the information that the applicant has invented the specific subject matter later claimed. *In re Wright*, 9 USPQ 2d 1649 (Fed. Cir. 1989)

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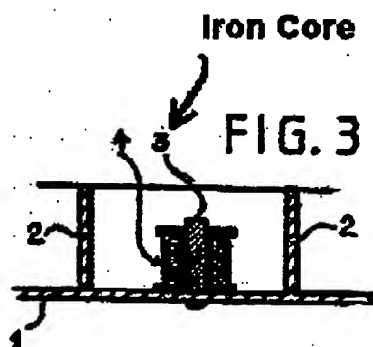
Based upon the above, it is submitted that applicant's claimed invention is enabled by the original specification, inasmuch as one skilled in the art reading applicant's disclosure could make and practice the invention quite easily.

The Examiner is therefore requested to reconsider and withdraw the rejection of claims 1-7, 14 and 15 under 35 U.S.C. §112, first paragraph.

Claims 1-6, 8-11, 14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over UK Patent Application No. 2,086,243 to Fuscone et al. in view of U.S. Patent No. 4,107,587 to Ban.

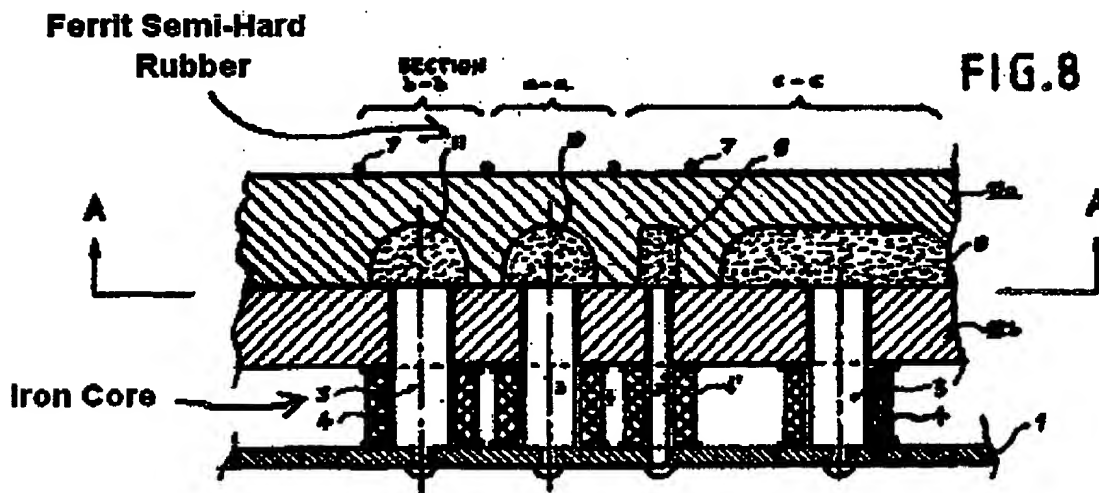
Claim 7 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Fuscone et al. in view of Ban and further in view of U.S. Patent No. 4,768,789 to Clark.

Fuscone et al. teaches the use of "sensors" that include iron cores 3 that are surrounded by coils 4 as shown in Fig. 3 which is presented here:



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In the embodiment of Fuscone et al. shown in Fig. 8, in addition to cores 3, the dart board is also provided with areas of "a ferrite semi-hard rubber" substance in recesses 8, 9, 10 and 11 as follows:



Fuscone et al. requires the iron cores to create a path having low resistance along which the magnetic field can be lead within coils 4.

That is, as known at the time of Fuscone et al. providing iron cores within the induction coils reduces the path of resistance of any magnetic field and concentrates the effect of any magnetic field within the center of the induction coil (within the iron coils).

Accordingly, following the teachings of Fuscone et al. the iron cores are required particularly when considering where they are positioned in Fig.8, i.e. well beneath the front

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surface if the dart board. It follows that eliminating the iron cores would destroy the teachings of Fuscone et al.

On page 4 of the Office Action the Examiner has conceded that Fuscone et al. fails to teach the use of coreless induction coils.

Accordingly, the Examiner has relied upon Ban et al. as disclosing:

...another electromagnetic induced application, a three-phase DC motor, which employs coreless induction coils for small induction gain purpose (Column 13, line 54).

In combining the teachings of Fuscone et al. and Ban et al., the Examiner takes the position that:

It would have been obvious...to choose the coreless induction coils over inductance coils with cores for any application that only requires a small amount of inductance as in said dartboard to reduce the additional weight of the cores and thus lowering the manufacturing costs.

Initially the undersigned notes that it is interesting how the Examiner has taken contradictory positions that 1) that the use of coreless induction coils (as shown in Fig. 4) are not enabled to one skilled in the art; and 2) the use of coreless induction coils would be obvious to one skilled in the art.

Both positions cannot be stand.

Ban teaches a three-phase DC motor having three non-superimposed armature coils which are described as being "coreless armature coils."

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In setting forth a procedure as to how to distinguish analogous from non-analogous art MPEP §2141.01(a) states that "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir.1992).

It is first noted that the field of invention of electronic dart boards is completely different from the field of invention of three-phase DC motors. More specifically, Ban et al. is directed at a structural improvement over the prior art use of three armature coils.

Ban et al. is clearly non-analogous with respect to dart boards from a technical standpoint.

That is, one skilled in the art of dart boards would not turn to Ban et al. for assistance, absent some showing that Ban et al. is reasonably pertinent to dart boards.

Accordingly, the second prong of the test for whether Ban et al. is analogous art, as set forth in MPEP §2141.01(a) needs to be considered. That is if Ban et al. is "reasonably pertinent to the particular problem with which the inventor was concerned."

As discussed at column 1, lines 14-52, Ban et al. is concerned with addressing a particular problem in the prior art which was related to the structure of superimposed armature coils of three-phase DC motors. The solution provided by Ban et al. involves a particular structural arrangement of the armature coils.

Ban et al.'s solution which is set forth at column 1, lines 53-60 is to provide:

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...a three-phase DC motor having a coil type armature provided with insulated coil windings, the angular width of the armature coils is equal to the width of the field magnet pole, and a coil or coils of one phase is shifted by 180° in electrical angle from the next phase, and all the armature coils are arranged on the armature at equal angular intervals and are not superimposed with respect to one another.

As the Examiner will note, the problem addressed and solved by Ban et al. has no relevance at all to dart boards or applicant's or Fuscone et al.'s invention.

Applicant's use of coreless induction coils provides numerous advantages over Fuscone et al. which are not at all realized by the application or consideration of the teachings of Ban et al.

First, by using a coreless induction coil, applicant can provide coils that are compatibly shaped to the various scoring areas of a dart board. In contrast, the induction coils of Fuscone et al., as shown in Fig. 2, do not at all conform to the shape of the scoring areas of the dart board. Moreover, in most instances, Fuscone et al. is required to provide multiple induction coils in individual scoring areas which will certainly increase cost, weight and complexity as compared to applicant's invention.

In addition, applicant's coreless induction coils allow the magnet tips of the darts to pass through the centers of the induction coils. This allows the dart board to be thinner than that of Fuscone et al. which requires that the dart board has sufficient thickness above or in front of the sensors (and recesses shown in Fig. 8) so the darts can penetrate and "stick" in the dart board. It also allows for the inducement of current as the magnetic tip of the dart to pass through the center of the induction coil which can create a larger current.

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Further, the coreless induction coils used by applicant avoid the use of "ferrite semi-hard rubber of the like substance" that Fuscone et al. provides in recesses 8, 9, 10 and 11 in Fig. 9. Thus, additional weight and thickness reduction are provided by applicant's invention.

It is submitted that the prior art relied upon by the Examiner does not render these and other features of applicant's invention obvious.

Accordingly, it is submitted that the prior art combined by the Examiner is non-analogous under the test set forth in the MPEP and nevertheless fails to render obvious all the results of applicant's invention which are unexpected over the bald teachings of the prior art.

It is submitted that the present invention is both structurally and functional different and distinct from Fuscone et al. taken alone or in combination with Ban et al.

Based upon the above distinctions between the prior art relied upon by the Examiner and the present invention, and the overall teachings of prior art, properly considered as a whole, it is respectfully submitted that the Examiner cannot rely upon the prior art as required under 35 U.S.C. §103 to establish a prima facie case of obviousness of applicant's claimed invention.

It is, therefore, submitted that any reliance upon prior art would be improper inasmuch as the prior art does not remotely anticipate, teach, suggest or render obvious the present invention.

It is submitted that the claims, as now amended, and the discussion contained herein clearly show that the claimed invention is novel and neither anticipated nor obvious over the teachings of the prior art and the outstanding rejection of the claims should hence be withdrawn.

Therefore, reconsideration and withdrawal of the outstanding rejection of the claims and an early allowance of the claims is believed to be in order.

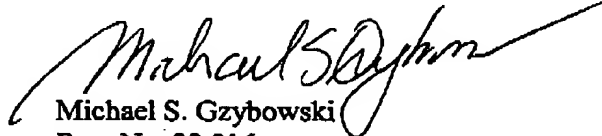
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It is believed that the above represents a complete response to the outstanding Official Action and reconsideration is requested.

If upon consideration of the above, the Examiner should feel that there remain outstanding issues in the present application that could be resolved, the Examiner is invited to contact applicant's patent counsel at the telephone number given below to discuss such issues.

To the extent necessary, a petition for an extension of time under 37 CFR §1.136 is hereby made. Please charge the fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 12-2136 and please credit any excess fees to such deposit account.

Respectfully submitted,



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